

# **63<sup>nd</sup> Annual Report National Cooperative Dry Bean Nurseries**

**2012**

**Compiled by  
Phillip N. Miklas, Coordinator  
USDA-ARS**

**Cooperative Investigation among California, Colorado, Idaho,  
Maryland, Michigan, Montana, Nebraska, New York, North  
Dakota, Washington, and Wyoming -State Experiment Stations and  
Agricultural Research Centers- as part of the  
Regional W2150 Multi-State Project**

**and**

**University of Guelph, Canada**

**and**

**Agriculture Research Service – USDA**

## **Call for 2013 Cooperative Dry Bean Nursery**

### **Seed Submissions**

It is time to request seed submission for 2012 Cooperative Dry Bean Nurseries. I would like to receive **the list of seed submission** no later than **April 1, 2013** and **the seed** must be here no later than **April 15, 2013**. All entries will be planted in replicated test plots across several locations in the United State and Canada. Data will be taken for seed yield, 100-seed weight and several agronomic and marketing characteristics. They will also be included in several disease nurseries including bean rust and ..... Michigan will conduct canning tests.

**The seed requirements** for each of the three groups are as follows:

1. Small-seeded (Black, Navy, Others): **15 lbs/line**.
2. Medium-seeded (Great Northern, Pink, Pinto, Small Red, Others): **25 lbs/line**.
3. Large-seeded (Cranberry, Kidney, Others): **35 lbs/line**.

**As in the past, all lines must be:**

- Western grown (West of the Rocky Mountain)
- Pathogen free
- If susceptible to BCMV, an ELISA test will be required.
- Acceptable commercial quality (no broken, decayed, or off color seed)
- **Seed should be untreated**

**Fees:** This fee structure was decided by the W-1150 members at The Annual meeting in Mayaguez, Puerto Rico in 2003

Public institutions: \$150/ line submitted

Private institutions: \$300/line submitted

### **NURSERY OPERATIONS**

Public institutions that request a nursery will be charged US \$150 to defray seed handling expenses including treating, bagging, boxing and shipping costs. Please let me know if your institution is going to submit the seeds and participate in the field trial for 2013 CDBN.

Should you have any questions or concerns about the submission or participant fees please contact me or if you know anyone else who might like to submit seed or plant the nursery please let me know.

### **Contact and Shipping Information:**

Dr. Phil Miklas  
USDA/ARS - IAREC  
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Email: [phil.miklas@ars.usda.gov](mailto:phil.miklas@ars.usda.gov)

**Table 1. List of Contributors and Cooperators - 2012**

Name	Location	Seed Submit	Planting seed	Locations no.
Shree Singh	Kimberly, ID	yes	yes	1
Mike Moore	Powell, WY		yes	2
Paul Gepts	Davis, CA	yes	yes	3
Phil Miklas	Othello, WA	yes	yes	4
Mark Brick, Barry Ogg	Ft. Collins, CO	yes	yes	5
Juan M. Osorno	Fargo, ND	yes	yes	6
Carlos Urrea, Jim Schild	Scottsbluff, NE	yes	yes	7
Jim Kelly, Evan Wright	Frankenmuth, MI	yes	yes	8
Don Halseth Eric Sandsted	Freeville, NY		yes	9
Joyce Eckhoff	Sidney, MT		yes	10
Peter Pauls, Tom Smith Alireza Navabi	Elora R.S, Ont	yes	yes	11
Talo Pastor- Corrales	Beltsville, MD		yes (rust test)	
Bill Dean	Kimberly, ID	yes	yes (1 rep)	
James Beaver	Isabela, PR		yes	

**Table 2. Data contributors for 2012 Cooperative Dry Bean Nursery**

Loc	First	Last	Affiliation	EMAIL	Phone
CA	Paul	Gepts	University of CA – Davis	plgepts@ucdavis.edu	530-752-7743
CO	Mark	Brick	Colorado State University	Mark.Brick@colostate.edu	970-491-6551
	Barry	Ogg	Colorado State University	Barry.Ogg@Colostate.edu	
ID	Shree	Singh	University of Idaho	<a href="mailto:singh@kimberly.uidaho.edu">singh@kimberly.uidaho.edu</a>	208-423-6559
MD	Marcial	Pastor- Corrales	USDA/ARS	pastorm@ba.ars.usda.gov	301-504-6600
MI	Jim	Kelly	Michigan State University	kellyj@msu.edu	517-355-0271 ext. 1181
MT	Joyce	Eckhoff	MSU Eastern Ag Research Center	joyce.eckhoff@montana.edu	406-433-2208
ND	Juan	Osorno	North Dakota State University	<a href="mailto:juan.osorno@ndsu.edu">juan.osorno@ndsu.edu</a>	701-231-8145
NE	Jim	Schild	University of Nebraska	jschild@unl.edu	308-632-1480
NY	Donald	Halseth	Cornell University	deh3@cornell.edu	607-255-5460
	Eric	Sandsted	Cornell University	ers23@cornell.edu	519-824-4120 ext 52460
ON	Peter	Pauls	University of Guelph	ppauls@uoguelph.ca	519-824-4120 ext 8339
	Tom	Smith	University of Guelph	thsmith@uoguelph.ca	519-824-4120 ext. 56829
	Ali	Navabi	AAFC	alireza.navabi@agr.gc.ca	787-832-4040 ext. 2566
PR	James	Beaver	University of Puerto Rico	j_beaver@hotmail.com	509-786-9258
WA	Phil	Miklas	USDA-ARS	phil.miklas@ars.usda.gov	307-754-9815
WY	Mike	Moore	University of Wyoming	mdmoore@uwoyo.edu	

**Table 3. List of 2012 Cooperative Dry Bean Nursery Entries**

	Line	Previous no.	Breeder or source	Class
1	Othello		check	pinto
2	Long's Peak	CO 55646	Brick-CSU	pinto
3	PT9-6		ARS-Miklas	pinto
4	ND020351-R	Stampede	Osorno-NDSU	pinto
5	ISB-11		ISB-Dean	pinto
6	ISB-16		ISB-Dean	pinto
7	ISB-18		ISB-Dean	pinto
8	ISB-24		ISB-Dean	pinto
9	Rosetta	S08418	Kelly-MSU	pink
10	PK9-4		ARS-Miklas	pink
11	UCD-9634		Gepts-UCD	pink
12	Rio Rojo	NDZ 06249	Osorno-NDSU	red
13	SR10-20		ARS-Miklas	red
14	Coyne		Urrea	GN
15	GN9-1		ARS-Miklas	GN
16	T-39		check	black
17	Rexeter		Smith/Pauls-Guelph	Navy
18	CELRK		Check	LRK
19	Majesty		AAFC-Navabi	DRK
20	UCD 0801		Gepts-UCD	CRAN

## **The 2012 CDBN**

The 2012 CDBN comprised 20 test entries and three checks.

### **Agronomic nurseries**

There were approximately 1600 seeds supplied to each location sufficient to plant four 4-row replications, 20 to 25 feet long, for each entry. Seed treatment was provided by Syngenta (Sam Thornton & Doug Deschamp) and consisted of Cruiser, Maxim XL + Apron XL (MSDS are included with bean shipment unless nursery operator requested otherwise). Note Idaho Seed Bean received 100 seeds of each entry for observation and UPR (J. Beaver) received 150 seeds for winter nursery observation.

### **Disease Nurseries**

There were 400 seeds (untreated) supplied to Beltsville, MD, for rust screening.

## **DATA RECORDING AND SCALES**

The following were commonly recorded data by the CDBN collaborators. For ease and uniformity of reporting we shall describe and abbreviate each trait:

1. **Early Vigor (EV)**: Scored on a 1 to 9 scale, where 1= excellent and 9= very poor, within the first 3 weeks after emergence.
2. **Days to Flower (DF)**: Actual number of days from planting to when approximately 50% plants in a plot have at least one opened flower.
3. **Days to Maturity (DM)**: Actual number of days from planting to when approximately 50% of plants in a plot have at least one dry pod.
4. **Plant Height (PH)**: Record in cm from the base of the plant (soil surface) to the top node bearing at least one dry pod with seed.
5. **Growth Habit (GH)**: Record during flowering and verified when crop is senescent as type I=determinate erect or upright, II= indeterminate erect, and III= indeterminate prostrate.
6. **Lodging (LG)**: Scored at harvest on a 1 to 9 scale, where 1= 100% plants standing erect, and 9= 100% plants lay flat on the ground.
7. **Pod Clearance (PC)**: Recorded at harvest as percent of pods on plants not touching the ground or in contact with the soil surface.
8. **Biomass Yield (BY)**: Total plant dry weight recorded at 12% moisture and rounded up to the nearest whole number (lb/a).
9. **Seed Yield (SY)**: Recorded in lb/a at 12 % moisture and rounded up to the nearest whole number.
10. **Harvest Index (HI)**: The ratio of SY/BY expressed in % BY at 12% moisture.
11. **Weight of 100 seeds (SW)**: Weight of 100 randomly taken undamaged seed in grams at 12 % moisture.
12. **Appearance Desirability (SD)**: An aggregate value for seed size, shape, color and brilliance for the respective market class recorded by various scales (see footnotes).

For other traits and scoring methods, a footnote is provided with associated details.

**Table 4. Summary agronomic and rust reaction data for the 2012 CDBN.**

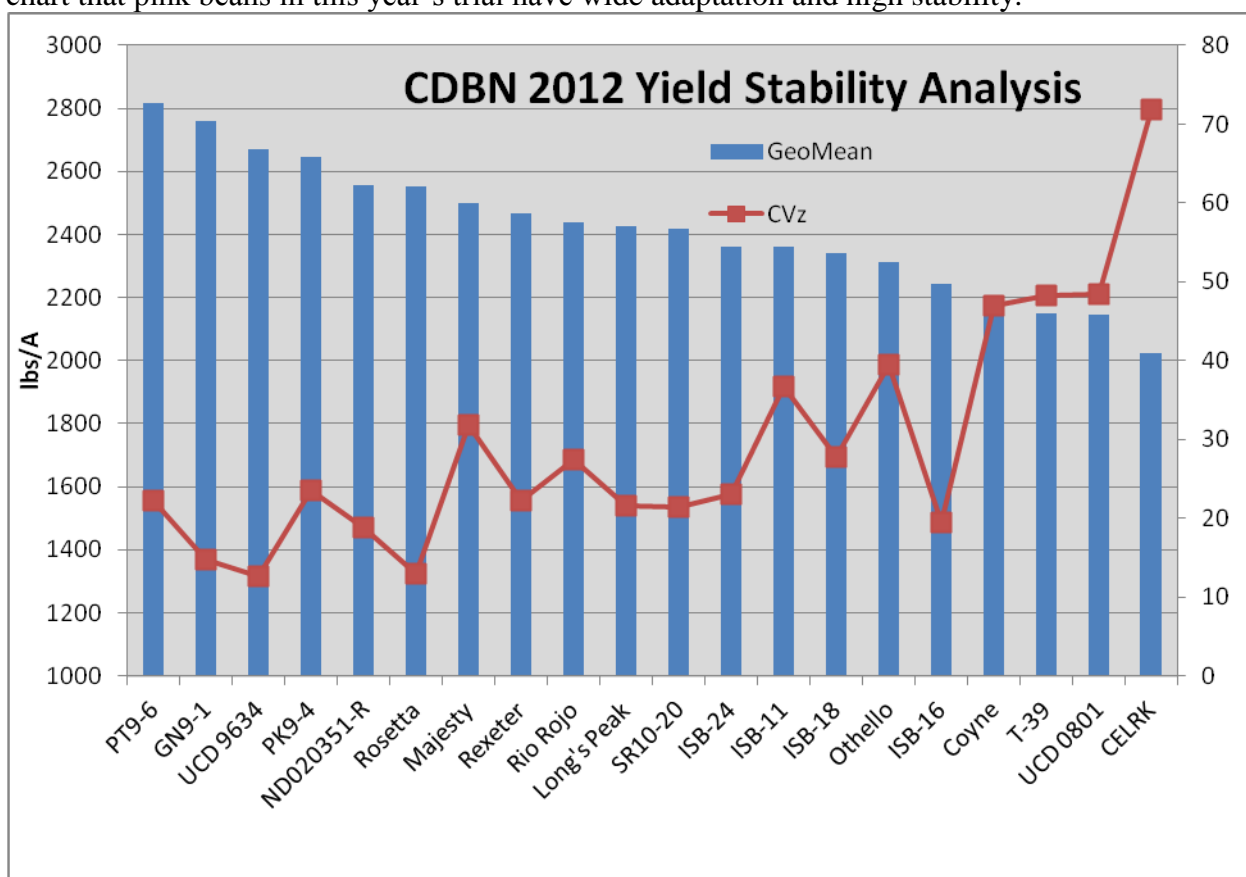
	Market			Harvest	CO	MD
Line	Class†	Yield	Seed wt.	maturity	Rust	Rust
		lbs/A	g 100 sd <sup>-1</sup>	days	1 to 6	1 to 9
<b>Othello</b>	pinto	2563	38	87	5,6	8
<b>Long's Peak</b>	pinto	2535	37	95	2,3	1
<b>PT9-6</b>	pinto	2992	37	97	1	1
<b>ND020351-R</b>	pinto	2622	39	97	1	1
<b>ISB-11</b>	pinto	2459	33	98	1	1
<b>ISB-16</b>	pinto	2338	38	89	5,6	3
<b>ISB-18</b>	pinto	2438	38	93	5,6	5
<b>ISB-24</b>	pinto	2476	38	93	6	4
<b>Rosetta</b>	pink	2603	33	96	6	3/4
<b>PK9-4</b>	pink	2734	36	92	3	3/4
<b>UCD 9634</b>	pink	2747	33	95	5,6	5
<b>Rio Rojo</b>	red	2487	31	94	1	1
<b>SR10-20</b>	red	2460	34	96	4,5	3
<b>Coyne</b>	GN	2285	37	95	1	2
<b>GN9-1</b>	GN	2797	37	94	5,6	4
<b>T-39</b>	black	2276	20	100	1	1
<b>Rexeter</b>	Navy	2554	19	101	1	4
<b>CELRK</b>	LRK	2116	53	86	3	5
<b>Majesty</b>	DRK	2563	60	93	3	5
<b>UCD 0801</b>	CRAN	2285	48	101	3	7
<b>Mean</b>		<b>2517</b>	<b>37</b>	<b>95</b>		

†Across locations not all market classes are tested in the exact same trial. At certain locations large, medium and small seeded market classes are tested in different trials within the same field or in completely different locations.

**Table 5. 2012 Summary yield (lbs/A) across locations.**

Line	Class	CA	CO	ID	MI	MT	ND	NE	NY	ON	WA	WY	Mean
<b>Othello</b>	<b>pinto</b>	3351	2699	1803	2548	3620	810	3948	2308	968	3101	3042	<b>2563</b>
<b>Long's Peak</b>	<b>pinto</b>	3338	3355	2307	2325	2770	1060	3037	2273	1758	2795	2863	<b>2535</b>
<b>PT9-6</b>	<b>pinto</b>	3455	3370	2822	3015	3450	990	4165	2751	1823	3591	3477	<b>2992</b>
<b>ND020351-R</b>	<b>pinto</b>	2991	3153	2424	2658	3280	1350	2837	2226	2223	2720	2981	<b>2622</b>
<b>ISB-11</b>	<b>pinto</b>	3228	3487	2693	2132	2050	1190	2743	2215	1623	2852	2842	<b>2459</b>
<b>ISB-16</b>	<b>pinto</b>	2788	2853	2412	2160	2890	1300	3085	2061	1284	1943	2944	<b>2338</b>
<b>ISB-18</b>	<b>pinto</b>	2469	2945	2588	2270	2390	1120	3317	2102	1614	2911	3089	<b>2438</b>
<b>ISB-24</b>	<b>pinto</b>	2856	2918	2260	2848	2880	1180	3386	1802	1412	2912	2780	<b>2476</b>
<b>Rosetta</b>	<b>pink</b>	3006	3001	2494	2907	3040	1790	3099	2153	1771	2408	2966	<b>2603</b>
<b>PK9-4</b>	<b>pink</b>	3425	3496	2213	2767	3570	2020	3493	2360	1936	1714	3077	<b>2734</b>
<b>UCD 9634</b>	<b>pink</b>	3381	3211	2377	2693	3370	2090	3313	2294	1445	2857	3186	<b>2747</b>
<b>Rio Rojo</b>	<b>red</b>	2358	3193	2248	2257	3350	2020	2702	2089	1824	2095	3225	<b>2487</b>
<b>SR10-20</b>	<b>red</b>	2833	2856	2494	2457	3160	1480	2601	2347	1968	2321	2547	<b>2460</b>
<b>Coyne</b>	<b>GN</b>	2538	2308	1569	1960	3210	2470	3289	2139	1475	1456	2715	<b>2285</b>
<b>GN9-1</b>	<b>GN</b>	2794	3289	2494	2584	3140	2430	3681	2359	2014	2959	3027	<b>2797</b>
<b>T-39</b>	<b>black</b>	2361	2573	1874	2482	2430	1300	2706	2386	1021	3986	1923	<b>2276</b>
<b>Rexeter</b>	<b>navy</b>	2966	2966	2061	2534	3150	1800	2724	2124	1461	3886	2419	<b>2554</b>
<b>CELRK</b>	<b>LRK</b>	2291	2289	1347	2848	2980	2020	1827	1471	1172	3023	2011	<b>2116</b>
<b>Majesty</b>	<b>DRK</b>	2185	2782	2084	2907	3380	2130	2694	2127	1668	3749	2483	<b>2563</b>
<b>UCD 0801</b>	<b>CRAN</b>	2983	3015	2400	962	2640	1980	2680	2194	1013	2979	2288	<b>2285</b>
<b>Mean</b>		2880	2994	2248	2492	3040	1620	3062	2189	1574	2543	2794	
<b>LSD (0.05)</b>		588	645	115	364	420	730	444	N.S.	298	836	437	
<b>CV (%)</b>		12.1	15	17	10.6	8.3	31.7	10.3	15	14.8	15.9	11.1	

This figure shows adaptation and stability of the lines for yield across test locations based on geometric means (adaptation) and coefficient of variation for Z (stability). The Z statistic from Airton et al. (BIC 48:182-183, 2005) measures adaptation and is correlated with geometric mean (Rayapati and Despain, BIC 49:249-250, 2006). It is apparent from the chart that pink beans in this year's trial have wide adaptation and high stability.





**Table 6. 2012 Summary seed weight (g 100 seeds<sup>-1</sup>) averaged across locations.**

<b>Entry</b>	<b>Class</b>	<b>CO</b>	<b>ID</b>	<b>MI</b>	<b>MT</b>	<b>ND</b>	<b>NE</b>	<b>NY</b>	<b>ON</b>	<b>WA</b>	<b>WY</b>	<b>Mean</b>
<b>Othello</b>	pinto	44.3	30.0	37.2	40.8	39.1	36.9	39.0	37.1	36.9	39.0	<b>38.0</b>
<b>Long's Peak</b>	pinto	42.3	40.0	37.2	35.8	33.4	36.4	39.6	35.4	37.7	36.0	<b>37.4</b>
<b>PT9-6</b>	pinto	38.0	35.0	38.7	34.0	39.5	34.4	35.6	35.3	36.9	38.0	<b>36.5</b>
<b>ND020351-R</b>	pinto	42.0	37.0	38.7	38.4	40.7	37.0	37.3	36.3	47.7	35.0	<b>39.0</b>
<b>ISB-11</b>	pinto	35.7	32.0	32.9	30.8	33.6	33.2	33.9	34.1	32.6	34.0	<b>33.3</b>
<b>ISB-16</b>	pinto	41.3	38.0	37.4	41.3	37.3	37.8	40.2	37.5	34.5	39.0	<b>38.4</b>
<b>ISB-18</b>	pinto	40.3	39.0	36.6	35.4	34.2	36.6	39.3	38.2	37.9	38.0	<b>37.6</b>
<b>ISB-24</b>	pinto	37.9	38.0	38.6	37.0	34.1	36.2	39.3	37.4	39.1	38.0	<b>37.6</b>
<b>Rosetta</b>	pink	33.6	33.0	33.5	32.1	34.9	31.4	33.8	30.1	34.1	34.0	<b>33.0</b>
<b>PK9-4</b>	pink	37.7	35.0	39.1	36.8	36.4	36.3	36.2	36.0	33.5	37.0	<b>36.4</b>
<b>UCD 9634</b>	pink	34.1	30.0	29.9	31.8	35.8	32.4	31.4	35.3	31.6	33.0	<b>32.5</b>
<b>Rio Rojo</b>	red	32.7	26.0	29.6	35.1	33.2	30.8	30.1	28.4	33.3	30.0	<b>30.9</b>
<b>SR10-4</b>	red	36.4	33.0	34.0	35.7	35.0	34.2	34.2	33.0	35.3	34.0	<b>34.5</b>
<b>Coyne</b>	GN	39.1	34.0	34.5	38.4	39.9	36.2	36.0	35.8	37.2	37.0	<b>36.8</b>
<b>GN9-1</b>	GN	40.2	36.0	37.4	36.9	38.8	35.7	37.6	36.3	38.3	37.0	<b>37.4</b>
<b>T-39</b>	black	18.7	17.0	21.9	20.7	20.6	18.9	20.0	20.3	19.1	19.0	<b>19.6</b>
<b>Rexeter</b>	Navy	18.4	21.0	20.1	18.3	19.4	17.8	20.2	19.8	19.4	19.0	<b>19.3</b>
<b>CELRK</b>	LRK	60.1	48.0	62.2	59.5	47.3	48.2	53.7	60.2	35.5	53.0	<b>52.8</b>
<b>Majesty</b>	DRK	67.6	55.0	65.6	68.2	61.2	58.6	60.4	67.4	38.0	59.0	<b>60.1</b>
<b>UCD 0801</b>	CRAN	52.1	48.0	51.2	48.8	47.3	47.6	48.5	52.1	32.5	48.0	<b>47.6</b>
<b>Mean</b>		39.6	35.0	35.5	37.8	37.1	35.8	37.3	37.3	34.6	36.9	36.7
<b>LSD (0.05)</b>		3.3		3.1	3.7	4.7	2.0	2		3.2	2.3	
<b>CV (%)</b>		5.9		6.1	5.9	9.0	3.9	4		5.2	4.3	

**Table 7. 2012 Summary days to flower across locations and harvest maturity (days).**

	CA	CO	MI	MT	NE	NY	ON	WY	Mean
<b>Othello</b>	42	47	48	57	44	34	37	45	<b>44</b>
<b>Long's Peak</b>	44	50	49	62	47	38	44	55	<b>49</b>
<b>PT9-6</b>	48	53	47	63	47	43	46	56	<b>50</b>
<b>ND020351-R</b>	48	53	48	60	46	40	43	55	<b>49</b>
<b>ISB-11</b>	47	52	48	63	49	41	44	54	<b>50</b>
<b>ISB-16</b>	43	50	47	58	45	38	39	48	<b>46</b>
<b>ISB-18</b>	42	52	48	58	45	37	41	49	<b>46</b>
<b>ISB-24</b>	44	52	47	58	45	37	39	48	<b>46</b>
<b>Rosetta</b>	47	54	48	62	47	41	45	56	<b>50</b>
<b>PK9-4</b>	46	51	47	58	46	39	43	54	<b>48</b>
<b>UCD 9634</b>	44	52	50	58	48	37	38	48	<b>47</b>
<b>Rio Rojo</b>	45	53	47	61	46	39	44	56	<b>49</b>
<b>SR10-20</b>	44	51	48	61	46	38	42	55	<b>48</b>
<b>Coyne</b>	43	51	48	57	46	39	42	52	<b>47</b>
<b>GN9-1</b>	46	52	49	61	47	38	44	53	<b>49</b>
<b>T-39</b>	51	58	44	62	51	43	46	58	<b>52</b>
<b>Rexeter</b>	49	54	44	64	51	41	45	51	<b>50</b>
<b>CELRK</b>	42	46	38	60	45	34	36	44	<b>43</b>
<b>Majesty</b>	45	53	40	60	46	37	42	54	<b>47</b>
<b>UCD 0801</b>	46	59	48	64	48	42	44	52	<b>50</b>
<b>Mean</b>	45	52	47	60	47	39	42	52	48
<b>LSD (0.05)</b>	3.4	1.5	1.0	2	3.0	2	1.4	2.4	
<b>CV (%)</b>	2.6	2.1	1.2	2	4.5	3	2.8	3.4	

CO	MI	ND	NE	NY	ON	WA	WY	Mean
86	93	106	86	71	86	87	79	<b>87</b>
93	101	111	94	77	94	99	89	<b>95</b>
101	97	109	97	80	96	101	94	<b>97</b>
101	100	110	96	79	93	107	93	<b>97</b>
102	103	112	100	78	100	100	93	<b>98</b>
91	94	103	88	72	91	87	90	<b>89</b>
92	102	113	96	74	91	92	86	<b>93</b>
98	95	106	93	73	92	98	89	<b>93</b>
100	96	106	97	77	94	103	95	<b>96</b>
95	95	105	91	76	91	95	89	<b>92</b>
94	101	110	97	76	94	102	89	<b>95</b>
95	98	106	93	77	93	103	90	<b>94</b>
97	100	111	94	77	93	104	89	<b>96</b>
93	101	107	96	78	92	103	87	<b>95</b>
94	104	107	94	76	94	97	88	<b>94</b>
102	103	106	99	80	104	103	102	<b>100</b>
103	103	111	101	79	103	108	98	<b>101</b>
92	92	79	86	80	91	89	82	<b>86</b>
97	94	94	94	80	98	93	92	<b>93</b>
104	103	100	98	88	104	107	103	<b>101</b>
95	99	105	94	77	95	99	91	94
14.3	2.0	4	3.6	4	2.0	4.6	3	
10.6	1.2	3	2.7	3	1.8	2.7	2.3	

**Table 8. Disease reaction data for 2011.**

		CO	CO	MD	MD
		Rust†	Rust	Rust	Rust
		score	reaction	score	reaction
<b>Othello</b>	pinto	5,6	Susceptible	8	Susceptible
<b>Long's Peak</b>	pinto	2,3	Intermediate	1	Resistant
<b>PT9-6</b>	pinto	1	Resistant	1	Resistant
<b>ND020351-R</b>	pinto	1	Resistant	1	Resistant
<b>ISB-11</b>	pinto	1	Resistant	1	Resistant
<b>ISB-16</b>	pinto	5,6	Susceptible	3	Resistant
<b>ISB-18</b>	pinto	5,6	Susceptible	5	Intermediate
<b>ISB-24</b>	pinto	6	Susceptible	4	Intermediate
<b>Rosetta</b>	pink	6	Susceptible	3/4	R/I
<b>PK9-4</b>	pink	3	Intermediate	3/4	R/I
<b>UCD 9634</b>	pink	5,6	Susceptible	5	Intermediate
<b>Rio Rojo</b>	red	1	Resistant	1	Resistant
<b>SR10-20</b>	red	4,5	Susceptible	3	Resistant
<b>Coyne</b>	GN	1	Resistant	2	Resistant
<b>GN9-1</b>	GN	5,6	Susceptible	4	Intermediate
<b>T-39</b>	black	1	Resistant	1	Resistant
<b>Rexeter</b>	Navy	1	Resistant	4	Intermediate
<b>CELRK</b>	LRK	3	Intermediate	5	Intermediate
<b>Majesty</b>	DRK	3	Intermediate	5	Intermediate
<b>UCD 0801</b>	CRAN	3	Intermediate	7	Susceptible

Rust for CO is based on 1 = no symptom, 2 – necrotic fleck, 3 is small pustule and 4, 5, 6, are larger pustules. For MD rust, scale is based on disease severity and incidence with 1 = best and 9 = worst. Rust checks (MD) UI-114 = 9, Aurora = 5, and Buster = 2.

**Table 9. Miscellaneous trait data for 2011 CDBN.**

		Emer gence	Stand	Growth habit		Canopy height		Lodging		Desir ability	Harvest ability	Bio- mass	Harvest index
Line	Class	WA	MT	CO	NE	MI	ND	MI	WA	MI	ON	NY	NY
		1 to 9	%			cm		(1-5)	1 to 9	1-7	1-5	lbs/A	
<b>Othello</b>	pinto	2.8	93	III	3B	41	39	5.0	7.7	3.0	4.3	3588	64
<b>Long's Peak</b>	pinto	3.0	92	II	2B	55	46	2.0	3.2	5.5	2.9	3995	57
<b>PT9-6</b>	pinto	2.5	95	II	3B	50	41	2.0	6.2	4.0	3.1	4511	61
<b>ND020351-R</b>	pinto	4.2	93	II	2B	53	53	2.0	3.8	4.5	2.4	3812	58
<b>ISB-11</b>	pinto	2.5	93	II	3B	45	42	4.0	7.7	2.5	3.9	4098	54
<b>ISB-16</b>	pinto	2.5	95	III	3B	46	41	2.5	4.8	3.0	4.0	3502	59
<b>ISB-18</b>	pinto	2.5	95	III	3B	43	54	3.5	5.3	2.5	2.8	3662	57
<b>ISB-24</b>	pinto	2.5	95	II	3B	47	44	3.0	7.0	3.5	4.0	3119	58
<b>Rosetta</b>	pink	5.8	93	II	3B	54	56	2.0	2.8	6.0	2.0	3734	58
<b>PK9-4</b>	pink	5.2	92	II	3B	47	46	2.5	4.0	3.0	3.5	4072	58
<b>UCD 9634</b>	pink	6.3	95	II	3B	48	48	3.0	5.3	3.5	3.3	3752	61
<b>Rio Rojo</b>	red	6.8	93	II	3A	47	50	2.0	3.3	4.0	2.8	3695	57
<b>SR10-20</b>	red	4.2	88	II	3B	52	49	2.0	2.7	4.5	2.8	4173	56
<b>Coyne</b>	GN	5.7	92	IIb	3A	48	40	3.0	3.0	3.5	3.0	3723	57
<b>GN9-1</b>	GN	4.5	90	IIb	3B	43	38	4.0	6.7	3.0	4.0	3984	59
<b>T-39</b>	black	2.7	88	II	3A	41	49	4.0	8.2	3.0	3.5	4086	58
<b>Rexeter</b>	Navy	2.7	93	II	2B	52	48	2.0	6.5	4.0	2.9	3729	57
<b>CELRK</b>	LRK	2.3	92	I	1A	45	41	1.0	1.2	3.3	3.1	2702	54
<b>Majesty</b>	DRK	3.7	88	II	1A	48	56	2.5	2.3	3.0	3.4	3651	58
<b>UCD 0801</b>	CRAN	2.7	88	I	1A	50	55	1.0	6.6	1.0	3.0	4777	46
<b>Mean</b>		3.8	92			48	47	2.8	4.9	3.7	3.2	3818	57
<b>LSD (0.05)</b>		1.4	3.9			2.2	10	0.7	1.5	0.2	0.60	1001	4
<b>CV (%)</b>		18.4	2.6			2.7	15	14.6	21.8	3.6	15.9	13	34

Emergence whereby 1 = best and 9 = worst; lodging 1 = best and 5 or 9 = worst. Desirability where 7 is best and 1 is worst. Harvest-ability where 1 is best and 5 is worst.

Table 10. Isabela, PR 2012 – CDBN result for 2011 nursery entries.

<b>CDBN line</b>	<b>Seed yield (kg/ha)</b>
<b>Othello</b>	2051
<b>CO55646</b>	1944
<b>IP-08-2</b>	1955
<b>IP09-3</b>	1615
<b>PT 8-6</b>	1627
<b>PT 8-15</b>	1869
<b>PT 9-6</b>	3111
<b>Sequoia</b>	1951
<b>Odyssey</b>	1984
<b>Max</b>	1635
<b>Apache</b>	1640
<b>Lariat</b>	2786
<b>ND307</b>	2606
<b>Stampede</b>	2338
<b>ND020351-R</b>	2575
<b>Coyne</b>	2293
<b>T-39</b>	2564
<b>Avalanche</b>	2509
<b>Rexeter</b>	2235
<b>UCD-0801</b>	2269
<b>Bellagio</b>	1831
<b>Majesty</b>	1951
<b>OAC Inferno</b>	2107
<b>CELRK</b>	2469
<b>Mean</b>	2163
<b>LSD(0.05)</b>	647
<b>CV(%)</b>	14.5

## **Individual location reports**

**MD:** All bean lines/cultivars were evaluated in two reps, each rep was in a single rows (2m long). The bean rust severity was compromised this year by above average temperatures so the ratings will be lower than expected during a normal year so some lines rated resistant could be susceptible.

### **Bean Rust Scale:**

1. Highly resistant: no visible rust pustules present.
3. Resistant: presence of only a few and generally small pustules on most plants that cover approximately 2% of the foliar area.
5. Intermediate: presence of generally small or intermediate pustules on all plants that cover approximately 5% of the foliar area.
7. Susceptible: presence of mostly large pustules often surrounded by chlorotic halos that cover approximately 10% of the foliar area.
9. Highly susceptible: presence of large and very large pustules, with chlorotic halos that cover more than 25% of the foliar tissue and cause premature defoliation.

### **CDBN information, Sidney, Montana**

Corresponding cooperator: Joyce Eckhoff

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Altitude: 1950 ft

Latitude: 47° 40' N

Longitude: 104° 08'

Soil type: Savage silty clay

Previous crops: 2011 –sugarbeet, 2010 – small grain, 2009 – safflower

Residual soil N to 4 ft: 30 lb/ac

Residual soil P to 6 inches: 18 ppm

Applied fertilizer: 300 lb/ac 18-46-0 applied in fall, 2011

9% zinc applied at a rate of 27 oz/ac June 28

Herbicides: Sonolan at a rate of 3 pt/ac and Eptam at a rate of 3 pt/ac applied May 6 and incorporated immediately

Experimental design: Randomized complete block with three replications

Rows per plot: 3

Row length: 20 feet

Spacing between rows: 2 feet

Planted: May 15

Irrigated (sprinkler) on: July 5, July 19, August 3, August 18 and August 30

Precipitation April – August, 2012: 8.03 in  
Ave (63 yr) precipitation April – August: 9.53 in  
Precipitation September 2010 – August 2012: 10.17 in  
Ave (63 yr) precipitation September – August: 13.99 in

Comments:

Conditions were dry at planting, and it was generally a hot, dry summer. Rain was timely.

Harvested: September 4, 14 and 21

Harvest method: hand pulled, dried, and threshed with a Wintersteiger plot combine

Area harvested: 32 feet<sup>2</sup>

**WY:** The experiment was located at the University of Wyoming Research and Extension Center in Powell, Wyoming. The soil, a Garland clay loam, (fine, mixed, mesic: Typic Haplarid), was prepared by roller harrow and leveled in the spring. Chemical weed control consisted of a preplant incorporated chemical treatment of 2 pints of Sonalan and 14 ounces of Establish, which was applied on April 15. The plots received 65 units of N, 50 units of P and 5 units of Zn on April 15<sup>th</sup>. The plots were planted on May 18<sup>th</sup> in three row plots that were 5.5 feet wide by 20 feet long. IH 185 planter units with cone attachments were used, set on 22-inch row spacing. The experimental design was a randomized block with 4 replications. Cultivation controlled weed escapes during the growing season. Furrow irrigation was applied on May 4<sup>th</sup> (preplant), June 23<sup>rd</sup>, July 2<sup>nd</sup>, July 11<sup>th</sup>, July 11<sup>th</sup>, July 25<sup>th</sup>, August 3<sup>rd</sup>, and August 10<sup>th</sup>. Visual estimates for days to 50 percent bloom (50 percent of plants at second bloom) and days to maturity (50 percent of the plants with one buckskin pod) were made. Subplots of one row by 10 feet were pulled by hand, and plots were threshed with an Almaco stationary small plot thresher. The seed was hand picked to remove dirt clods and seed mixtures. Samples were then weighed for clean seed yield per plot and seeds per pound.

Stand establishment was excellent, with timely planting and warm soil temperatures. High summer temperatures and limited summer precipitation, followed by an exceptional fall, allowed all entries to reach maturity. Yields across entries averaged 2,794 lbs. per acre, and ranged from 1,923 pounds per acre for ‘T-39’ black bean to 3,477 pounds per acre for ‘PT9-6’ pinto bean.